Philosophy of Nature · Philosophy of Science · Philosophy of Society — Natural Rationalism

This is a monumental philosophical monograph: Philosophy of Nature · Philosophy of Science · Philosophy of Society — Natural Rationalism. It is a systematic work of philosophical research, and I will gradually construct this vast ideological system chapter by chapter.

Philosophy of Nature · Philosophy of Science · Philosophy of Society — Natural Rationalism

A Philosophical and Scientific Monograph on Modern Natural Rationalism

Preface: The Birth and Mission of Natural Rationalism

In the long river of human thought, philosophy has always played the role of inquiring into ultimate existence and exploring universal truth. From Thales' water to Heraclitus' fire, from Plato's Ideas to Aristotle's substances, from Descartes' cogito to Kant's critique, philosophy has constantly sought the ultimate principle that can unify and explain everything. However, with the rise of modern science, philosophy seems to have fallen into a kind of identity crisis: it can neither degenerate entirely into a vassal of science nor stubbornly cling to the ivory tower of metaphysics. In this tension, Natural Rationalism emerged as the times require.

Natural Rationalism is neither a simple return to tradition nor a blind following of modernity, but a philosophical effort to reconstruct the authority of reason on the foundation of nature. It acknowledges the great achievements of science but rejects the hegemony of scientism; it respects traditional wisdom but opposes the conservatism of obscurantism; it concerns social reality but guards against the erosion of utilitarianism. The core belief of Natural Rationalism is: reason is the highest capacity bestowed upon human beings by nature, and the mission of philosophy is to use this capacity to understand nature, guide science, and shape society.

This book has been written over many years, aiming to construct a complete philosophical system covering three core fields: philosophy of nature, philosophy of science, and philosophy of society. Taking Natural Rationalism as its methodological principle, this system attempts to answer the following fundamental questions: What is the essence of nature? On what foundation does scientific knowledge rest? What is the rational basis of social order? These three interrelated questions together constitute the central agenda of modern philosophy.

This book consists of thirty chapters divided into three parts. Part One (Chapters 1–10) explores philosophy of nature, from the ontological inquiry into being to the systematic understanding of nature. Part Two (Chapters 11–20) studies

philosophy of science, from the reflection on scientific methodology to the epistemological analysis of scientific knowledge. Part Three (Chapters 21–30) discusses philosophy of society, from individual reason to public reason, from ethical norms to political order. Each chapter is relatively independent yet organically integrated with the others.

The methodological characteristic of Natural Rationalism lies in its insistence on the critical use of reason and rejection of all dogmatic doctrines; its emphasis on the systematic nature of nature and opposition to the one-sidedness of reductionism; its focus on practical relevance and avoidance of pure scholastic philosophy. This methodological stance runs through the entire book and is embodied in the analysis of every specific issue.

The intended readership of this book includes researchers, students, and lovers of thought with a certain philosophical background. The writing style strives to be profound but not obscure, extensive but not diffuse, witty but not frivolous. Philosophy ought to be a serious intellectual enterprise, but this does not mean it must be dry. On the contrary, genuine philosophical thinking is full of the surprise of discovery and the joy of wisdom. I hope that readers will not only gain intellectual depth but also experience the pleasure of thinking while reading this book.

Finally, it should be noted that as a philosophical position, Natural Rationalism does not claim to possess ultimate truth. Quite the opposite: it acknowledges the finitude of human reason and the openness of philosophical exploration. All the views and arguments put forward in this book welcome critical examination and discussion. The vitality of philosophy lies precisely in this constant questioning and dialogue.

May this work contribute to the exploration of contemporary philosophy and provide a beacon for those who seek wisdom.

Part One: Philosophy of Nature — The Inquiry into Being and the Understanding of Nature

Chapter 1: The Wonder of Being: The Origin of Philosophical Questions

The beginning of philosophy is not answers, but questions; not conclusions, but wonder.

In Plato’s Theaetetus, it is recorded that Thales fell into a well while gazing at the stars and was mocked by a Thracian maid. This allegory symbolizes the eternal tension between philosophers and ordinary people: ordinary people care about the practicalities at their feet, while philosophers look up to the transcendence of the stars. Yet this mockery itself reveals a profound truth — philosophy begins with the transcendence of the everyday, with wonder at being.

At the start of his Metaphysics, Aristotle states: “All human beings by nature desire to know.” This desire is not utilitarian, not for satisfying some practical need, but out of pure curiosity, a wonder at being itself. Philosophy is born when we ask “why,” when we are not satisfied with appearances and seek essence. Why does being exist? Why are things as they are and not otherwise? These questions have no practical answers, yet precisely these “useless” questions form the highest form of human spiritual life.

The wonder of being first manifests as wonder at “that which is.” Why are there beings rather than nothing? This is the famous question raised by Leibniz, and the fundamental question of ontology. Nothingness seems more “natural,” more in need of no explanation, while being requires a reason. When we realize this, a metaphysical wonder arises: being itself is a miracle, a miracle to be understood. This wonder is not fear or anxiety, but a pure cognitive longing, a rational impulse to understand the mystery of being.

The wonder of being also manifests as wonder at the “One and the Many.” The world presents infinite diversity: mountains and rivers, plants and creatures, stars and seas, human society. Yet behind this diversity, is there a unifying principle? Parmenides insists that “being is one,” while Heraclitus emphasizes that “all things flow.” This dialectic of the One and the Many forms the central thread of Western philosophy. Natural Rationalism holds that diversity should not be reduced to monotonous identity, nor should unity erase rich difference. True wisdom lies in understanding the dialectical unity of the One and the Many: nature is both diverse and unified, both changing and constant.

The wonder of being further manifests as wonder at the “Good.” Why is the world not merely existent, but also seemingly ordered, harmonious, and beautiful? Is this order and beauty a coincidental accident, or a feature of being itself? The Pythagoreans discovered the harmony of music and mathematics; Plato saw the eternal beauty of the world of Ideas; Aristotle marveled at the teleology of nature. The rise of modern science seemed to dissolve this teleological wonder, reducing nature to a mechanical chain of causality. Yet Natural Rationalism holds that mechanistic explanation is only one dimension of understanding nature, not the whole. The order and beauty of nature still deserve wonder and still require philosophical understanding.

From this wonder, philosophy embarks on its long journey. Natural Rationalism inherits this spirit of wonder but gives it modern form. We are no longer satisfied with mythical answers, nor do we remain in mere admiration; instead, we use the tools of reason to analyze, to argue, to construct. Yet the use of reason itself requires reflection: where are the limits of reason? How can reason be reconciled with nature? These questions will lead us into deeper thinking.

Chapter 2: The Concept of Nature: From Physis to Nature

“Nature” is one of the most fundamental and complex concepts in philosophy. Its historical evolution reflects profound changes in the way human beings understand the world.

In ancient Greece, “nature” was called physis, a term related to “growth” (phyesthai), meaning the process by which things emerge, unfold, and realize their nature from within themselves. In his Physics, Aristotle defines: “Nature is a principle of motion and rest in that to which it belongs primarily.” This understanding emphasizes interiority, spontaneity, and teleology: nature is not external compulsion, but internal tendency; not passive reception, but active actualization.

The opposition between physis and nomos (custom, law) is a major theme of ancient Greek thought. The Sophists emphasized this opposition, attempting to dissolve the legitimacy of custom by the necessity of nature; Socrates, Plato, and Aristotle sought to reconcile them, arguing that true nomos should accord with physis, with human nature. This debate foreshadows the later development of natural law theory and reveals the normative dimension of the concept of nature: nature is not merely a descriptive concept, but also an evaluative standard.

The Latin natura inherited the Greek physis but underwent an important transformation in the Roman period. Roman thinkers such as Cicero connected natura with reason, law, and morality, forming a systematic theory of natural law. The Stoics held that the cosmos is a rational whole, and human beings as rational beings ought to live according to nature — that is, according to reason. This thought exerted a profound influence on Western civilization through Roman law and medieval theology. Nature was no longer merely growth and change, but became rational order and moral law.

Medieval Christian theology profoundly transformed the concept of nature. Within the Christian framework, nature became a creation of God, and natura was contrasted with gratia (grace). Nature retained its rational order, but this order was now seen as an expression of divine reason. Thomas Aquinas synthesized Aristotelian philosophy and Christian theology, arguing that natural law is the moral law inscribed by God in the human heart, discovered by reason. This understanding strengthened the normativity of nature but also planted the seeds of tension between nature and the supernatural.

The rise of modern science brought about a fundamental revolution in the concept of nature. Galileo, Descartes, Newton, and others established a mechanistic view of nature: nature is a collection of matter following mathematical causal laws, graspable through experiment and calculation. Nature was “disenchanted”: no longer possessing intrinsic purpose or qualitative difference, only extension, motion, and quantity. This view of nature greatly promoted the development of science, but also raised profound philosophical

problems: how can consciousness arise from matter? How can value stand in a world of facts? How can freedom be preserved within a necessary causal chain?

Natural Rationalism attempts to transcend this dualism of mechanism and teleology, reductionism and holism. We hold that nature is a multi-level, multi-dimensional reality: at the physical level, it follows causal laws; at the biological level, it displays self-organization and teleology; at the conscious level, it exhibits subjectivity and meaning; at the social level, it constructs norms and culture. These levels are relatively autonomous yet interrelated, together constituting the richness of nature.

The systematic nature of nature is the key to understanding this multi-leveledness. Modern systems science, complexity science, and ecology show that nature is not an accumulation of isolated individuals, but an interconnected network, a dynamically evolving process, a whole that emerges with new qualities. From quantum entanglement to ecosystems, from cellular metabolism to the brain's neural networks, nature displays astonishing complexity and organization. This systematic understanding both respects scientific discoveries and preserves the intrinsic value of nature, providing a scientific foundation for Natural Rationalism.

The historicity of nature is another important dimension. From the Big Bang to the origin of life, from human evolution to the development of civilization, nature is becoming, evolving, historical. This historicity is not a negation of rational order, but the self-unfolding of rational order. Hegel's dialectics, Darwin's theory of evolution, and modern cosmology all reveal the historical dimension of nature. Natural Rationalism accepts this historicity but refuses to reduce it to pure contingency or blind necessity. The evolution of nature is directional, layered, and meaningful — though this meaning requires rational reflection to reveal.

The normative dimension of nature requires special emphasis. Nature is not merely a collection of "what is," but also implies an orientation of "what ought to be." This does not mean that nature directly tells us what to do, but that the structure of nature, the nature of human beings, and the function of society all contain a standard of "the good." Health for the body, truth for knowledge, justice for society — all are expressions of this natural normativity. Natural Rationalism opposes the absolute separation of fact and value, arguing that value judgments can and should be built on the basis of understanding nature — though such a basis requires the critical construction of reason.

In summary, the concept of nature has evolved from physis to Nature: from the interiority of growth to mechanistic causality, then to systemic complexity. Natural Rationalism attempts to synthesize these understandings and propose a concept of nature that is both consistent with modern science and retains philosophical depth: nature is a self-organizing, self-evolving rational order, a multi-leveled, historical, normative systemic reality. To understand nature is to understand the levels, dynamics, and meaning of this order.

Chapter 3: The Ontology of Being: Substance, Process, and Relation

Ontology is the study of “being qua being,” the core field of philosophy. From Parmenides’ theory of being to Aristotle’s substance theory, from Descartes’ dualism to Heidegger’s fundamental ontology, Western philosophy has constantly explored the fundamental structure of being. The ontological position of Natural Rationalism can be summarized as: being is neither static substance, nor fluid process, nor pure relation, but the dialectical unity of substance, process, and relation.

Substance ontology is the mainstream tradition of Western philosophy. From Aristotle’s “primary substance” to the “material substance” and “spiritual substance” of modern philosophy, substance is understood as an independently existing, unchanging foundation. The advantages of this ontology are: it provides a stable frame of reference, making knowledge and practice possible; it explains the identity of things, enabling the understanding of individuation; it supports subject-predicate logic, grounding linguistic expression. However, substance ontology also faces profound difficulties: how to explain change? If substance is unchanging, how is change possible? How to explain relations? If substances are independent, are relations real or derivative? How to explain consciousness? If substance is material, how can spirit exist?

Process ontology is an important revision of substance ontology. From Heraclitus’ “everything flows” to Whitehead’s Process and Reality, process philosophers emphasize that becoming is prior to being, events prior to objects, activity prior to substance. Whitehead criticizes the traditional error of “simple location,” arguing that the fundamental reality is not objects occupying spatiotemporal positions, but events of experience, processes of becoming. This ontology better explains change, creation, and novelty, consistent with the spirit of modern physics (relativity, quantum mechanics) and biology (evolutionary theory). Yet pure process ontology also faces problems: if everything is fluid, how is identity established? If everything is becoming, how is the stability of structure explained? Does process itself require some kind of “bearer”?

Relational ontology is an important turn in contemporary philosophy. From Leibniz’s monadology to the structuralist concept of structure, from quantum entanglement to ecological network thinking, relations have been given increasingly important status. Relational ontology holds that beings are essentially constituted by their relations; apart from relations, beings have no meaning or even existence. This ontology emphasizes interdependence, wholeness, and contextuality, criticizing the prejudices of atomism and individualism. Yet relational ontology also faces challenges: do relations require relata? If relations are fundamental, what are the relata? Do relations themselves need a foundation? How to avoid an infinite regress of relations?

Natural Rationalism proposes a synthetic ontology: being is the dialectical unity of substance, process, and relation. This synthesis is not simple compromise, but recognition of the existential structures of different levels and aspects. At the physical level, matter-energy can be regarded as fundamental “substance,” but its mode of existence appears as process (motion, change) and stands in universal relations (interaction). At the biological level, organisms are substances, yet their essence is metabolic process, and they exist in complex relational networks with the environment. At the conscious level, the self is a substance, yet consciousness is a fluid process and essentially directed toward others and the world (intentionality). At the social level, institutions are substances, yet social life is process, constituted by various social relations.

The core of this synthetic ontology is the concept of “dynamic substance” or “substantialized process.” Substance is not a static substratum, but dynamic stabilization; process is not structureless flow, but organized becoming; relation is not external addition, but internal constitution. The three presuppose and transform one another: substance maintains itself through process and defines itself through relations; process requires substance as bearer and unfolds through relations; relations presuppose relata (substances), appear as process, and in turn shape substances.

Hierarchy and emergence are key to understanding this synthesis. Nature has different levels of organization: physical, chemical, biological, psychological, social. Each level has its unique substances, processes, and relations, irreducible to lower levels. Higher levels emerge from lower levels, possessing new properties and laws, yet not detached from lower-level foundations. This layered theory is neither reductionist nor dualist, but emergentist holism: it acknowledges qualitative difference but rejects mysterious leaps; it acknowledges downward causation but rejects complete autonomy.

Temporality and historicity occupy a central place in this ontology. Being is not timeless eternity, but becoming in time. From cosmic evolution to human civilization, being displays a historical dimension. Yet this historicity is not relativistic, not an accidental accumulation of “anything goes,” but structured evolution with direction. The rational order of nature unfolds in history; history is the self-actualization of reason. This understanding is related to Hegel’s philosophy of history, but rejects its speculative absolutism in favor of a scientific, critical, open view of history.

The unity of ontology and epistemology is a feature of Natural Rationalism. Traditional philosophy often distinguishes the order of being and the order of knowing, holding that ontology studies “what is” and epistemology studies “how we know.” Natural Rationalism holds that this distinction is relative and methodological, not absolute and ontological. The structure of being is the structure of intelligibility; rational cognition is the self-knowledge of being. This is not Hegelian absolute idealism, but recognition: consciousness is a product of natural evolution, reason is the highest achievement of nature, cognition is the

self-reflection of nature. In this sense, ontology and epistemology are two sides of the same coin.

In summary, the ontology of Natural Rationalism is a dynamic, layered, historical, relational-substantial-processual unified ontology. It both respects the profound insights of traditional philosophy and absorbs the latest achievements of modern science; it maintains the seriousness of ontology while avoiding the arrogance of dogmatism. This ontology provides an ontological foundation for the subsequent philosophy of science and philosophy of society.

Chapter 4: The Levels of Nature: Physics, Life, Consciousness, and Society

Nature is not a homogeneous plane, but a layered structure. From elementary particles to human society, nature displays astonishing levels and complexity. Understanding these levels and their relations is the central task of philosophy of nature. Natural Rationalism upholds a non-reductionist theory of levels: higher levels cannot be reduced to lower levels, yet cannot exist independently of them; there is both continuity and discontinuity between levels; emergence is real, but not mysterious.

The physical level is foundational, but not the only real one. Modern physics reveals the deep structure of nature: quantum fields, elementary particles, four fundamental interactions, the spacetime continuum. The indeterminacy of quantum mechanics, the spatiotemporal relativity of relativity theory, the irreversibility of thermodynamics — all challenge the determinism and mechanism of classical physics. Yet the basic characteristics of the physical level are: objectivity, quantification, causality. Physics studies nature as an object, describable with mathematical precision, following causal laws (even probabilistic ones). This object-oriented thinking is the foundation of science, but also has limitations: it treats nature as external, passive, manipulable, ignoring nature’s interiority, activity, and value.

The biological level is the first major emergence. From inorganic to organic matter, from molecules to cells, from metabolism to reproduction, life displays entirely new characteristics: self-organization, self-maintenance, self-replication, teleology, adaptability. Life is not a simple superposition of physico-chemical processes, but an organized whole, the emergence of the “self” (auto). The theory of autopoiesis emphasizes that the essence of living systems is self-production: they produce their own boundaries (cell membranes), their own components, their own organizational patterns. This self-referentiality is absent at the physical level.

The teleonomy of life requires special clarification. Modern biology rejects Aristotelian intrinsic teleology in favor of a mechanistic explanation of natural selection. Yet this mechanism cannot completely dissolve the appearance of teleology: the structure of organisms truly seems “as if” designed for certain functions — though this “as if” is the result of evolution, not design. Natural

Rationalism holds that functionality and teleology are real features of life, even though their foundation is causal and historical. Life is the unity of causality and teleology: causal processes produce teleological structures, and teleological structures regulate causal processes.

The conscious level is the second major emergence, and the most mysterious. From neural activity to subjective experience, from information processing to qualia, consciousness displays unique characteristics: subjectivity, intentionality, self-consciousness, rationality. The “hard problem” of consciousness (Chalmers) is: why do physical processes accompany subjective experience? Why is there something it is like to be conscious?

Natural Rationalism’s position on the problem of consciousness is: consciousness is an achievement of nature, a product of the high complexity of material organization, but this does not mean consciousness can be reduced to physical processes. Consciousness has an irreducible subjective dimension; this subjectivity is not a defect, but an expression of nature’s richness. Consciousness is the self-awakening of nature, the moment when being begins to know itself. From this perspective, consciousness is not a foreign element in nature, but the actualization of nature’s intrinsic possibility.

The intentional structure of consciousness (Brentano) shows that consciousness is always consciousness of something, always directed toward objects beyond itself. This transcendence breaks closed subjectivity and establishes the primordial connection between subject and world. Consciousness is not an isolated monad, but “being-in-the-world” (Heidegger). This being-in-the-world is both natural and cultural; both given and constructed.

The social level is the third major emergence, unique to human beings. From individual consciousness to collective consciousness, from tool use to institutional construction, from language to culture, society displays new characteristics: normativity, historicity, symbolicity, institutionality. Society is not a simple aggregate of individuals, but a sui generis emergent reality with its own structures and laws (Durkheim).

The core of the social level is the emergence of normativity. At the natural and biological levels, we speak of questions of “what is”; at the social level, questions of “what ought to be” become central. Morality, law, custom, institution — all are normative constructions. This normativity cannot be reduced to individual physio-psychological processes, nor to physical laws. Yet normativity is not a supernatural mystery, but a construction of human reason, a product of social practice.

The relations between the four levels are complex and nonlinear. The physical level supports the biological, the biological supports the conscious, the conscious supports the social; this supportive relation is enabling, not determining. Higher levels utilize the materials and energy of lower levels, but endow them with new

forms and functions. Lower levels constrain higher levels (they cannot violate physical laws), but do not fully determine their specific forms (the same physical basis can support different life forms, conscious states, social systems).

Reduction and anti-reduction between levels is a central issue in philosophy of science. Reductionism holds that higher levels can and should be reduced to lower levels, ultimately to physics; anti-reductionism holds that higher levels are autonomous and should not be reduced. Natural Rationalism takes a middle position: methodological reductionism combined with ontological non-reductionism. Methodologically, reduction is an effective research strategy; wholes can be understood by analyzing their components. Ontologically, emergence is real; wholes have properties not possessed by parts. This position both respects the analytical spirit of science and acknowledges the complexity of nature.

Cross-level research is at the frontier of contemporary science. Emerging disciplines such as complex systems science, cognitive science, and social neuroscience attempt to understand transitions and interactions between levels. These studies show that boundaries between levels are fuzzy and dynamic, with phenomena of “semi-emergence.” Philosophy of nature should pay attention to these studies, draw intellectual resources from them, and at the same time provide conceptual clarification and methodological reflection for them.

In summary, the layered nature of nature reveals the richness and complexity of being. The layered theory of Natural Rationalism is neither arrogant physicalism nor mysterious vitalism or idealism, but a dialectical layered theory that acknowledges difference, seeks connection, and respects emergence. This understanding lays the foundation for understanding the layered nature of scientific knowledge and the normativity of social reality.

Chapter 5: The Philosophy of Time: Past, Present, and Future

Time is a fundamental dimension of being, and one of the most puzzling philosophical questions.

In his Confessions, Augustine exclaims: “What is time? If no one asks me, I know; if I want to explain it to someone who asks, I do not know.” This puzzlement arises from time’s uniqueness: it is both objective (apparently a basic structure of nature) and subjective (apparently closely related to consciousness); both flowing (the past no longer, the future not yet, the present fleeting) and static (in the temporal coordinate system, every moment is equally real).

The physical view of time has undergone profound transformation. Newton’s absolute view of time holds that time is a uniformly flowing container, independent of matter and motion. This view accords with everyday experience and supports classical mechanics, but also faces philosophical difficulties: absolute time is unobservable, its existence merely hypothetical; the flow of time

cannot be measured, only the motion of objects. Leibniz criticized this view, arguing that time is the order of events, not an independent substance.

Einstein's theory of relativity revolutionized the concept of time: time is relative, related to the observer's state of motion; time and space are indivisible, forming four-dimensional spacetime; the flow of time is not absolute, and "the present" has no absolute meaning. This view challenges traditional ideas of change and causality, but also raises new questions: if time is a dimension similar to space, is change real? Is the direction of time (from past to future) fundamental or emergent?

The second law of thermodynamics introduces the arrow of time: the direction of entropy increase defines the direction of time. This temporal asymmetry is absent in microphysical laws (most are time-reversible), yet universal in the macroscopic world. This raises profound philosophical questions: is the direction of time fundamental, or emergent from more basic laws? Why does the low-entropy initial state of the universe (the Past Hypothesis) exist?

The phenomenological view of time emphasizes the subjective constitution of time. Husserl analyzed the conscious structure of time: primal impression, retention, and protention constitute the flow of time. Time is not a ready-made sequence, but the active constitution of consciousness. Heidegger further regarded temporality as the basic structure of Dasein: Dasein is "ahead-of-itself-already-in-the-world-as Being-alongside-the-beings-within-the-world"; this "ecstatic" temporality makes the understanding of being possible.

Bergson criticized the scientific view of time as "spatialized" time, reducing time to a spatial dimension (such as a timeline), thereby strangling time's essence — duration (durée). True duration is qualitative, heterogeneous, indivisible flow, creative evolution. This view emphasizes the vital and creative dimensions of time, exerting a profound influence on process philosophy.

The view of time in Natural Rationalism attempts to synthesize these insights. We hold that time is a multi-level, multi-dimensional reality: at the physical level, time is the coordinative relation between events, mathematically describable; at the biological level, time is the rhythm of metabolism, the cycle of growth, the history of evolution; at the conscious level, time is the flow of experience, the constitution of memory, the unfolding of anticipation; at the social level, time is the progress of history, the continuity of institutions, the inheritance of culture.

The directionality of time manifests differently at different levels. At the physical level, temporal direction may arise from thermodynamics, cosmology, or quantum gravity; at the biological level, it appears as development, aging, evolution; at the conscious level, as the flow of consciousness, the selection of attention, the planning of action; at the social level, as historical views of

progress, cycle, or decline. These directions are interrelated yet relatively autonomous.

The question of the present is especially important. Physics seems to dissolve the special status of the present: in relativity theory, the present is only a subjective slice of the observer; in the block universe theory, all events are equally real, and the present has no special ontological status. Yet phenomenology and everyday experience both emphasize the priority of the present: we can only directly experience the present; the past is only memory, the future only anticipation. Natural Rationalism holds that the present is not a durationless instant in the physical sense, but an extended “living present” (lebendige Gegenwart, Husserl). This presentness is both subjective and objective: it is the temporal structure of consciousness, but also the field where events occur.

The relation between time and freedom is a core question. If temporal determinism holds (the past fully determines the future), how is freedom possible? If time is completely open, how are causality and regularity possible? Natural Rationalism holds that the structure of time is neither fully determined nor completely open, but “weakly determined” or “structured openness.” The past constrains the present but does not fully determine it; the present is open to the future, but this openness is not arbitrary, limited by present conditions and possibilities. This understanding both preserves causality and leaves room for freedom.

The relation between time and history also requires reflection. History is the concretization of time, the unfolding of time in human society. The philosophy of history involves complex issues: progress and cycle, necessity and contingency, individual and structure. Natural Rationalism upholds the rational intelligibility of history but rejects historical determinism. History has laws, but these are not natural laws — they are tendencies, patterns, structures; history has meaning, but this meaning is not given, but constructed, interpreted, open.

In summary, the philosophy of time reveals the dynamism and historicity of being. The view of time in Natural Rationalism is multi-leveled, directional, open, and intrinsically related to consciousness and freedom. This understanding provides a temporal foundation for understanding the historicity of science and the transformability of society.

Chapter 6: The Philosophy of Space: Place, Field, and Horizon

Space is another fundamental dimension of being, forming the framework of nature together with time. Yet the concept of space has also undergone profound evolution: from Euclid’s geometric space to Einstein’s curved spacetime, from absolute space to relational space, from physical space to lived space, social space — the philosophical content of space has become increasingly rich.

The classical concept of space takes Euclidean geometry as its model. Space is a homogeneous, infinite, three-dimensional container in which objects move; points, lines, planes, and solids form the objects of geometry. This view accords with everyday experience and supports classical physics, but also implies profound assumptions: space is absolute (independent of matter), continuous (infinitely divisible), Euclidean (the parallel postulate holds). These assumptions were challenged in modern times.

Newton’s absolute view of space holds that space is the sensorium of God, the absolute frame of reference for the motion of objects. Although this view provides a foundation for mechanics, it was criticized by Leibniz: absolute space is unobservable and unnecessary; space is merely the order of relations between objects, not an independent substance. This relational view of space is philosophically more economical, but struggles to explain rotation and accelerated motion (the bucket experiment).

Kant provided a transcendental argument for space: space is not a property of things-in-themselves, but a pure form of sensibility; space is not a concept abstracted from experience, but a condition that makes experience possible. This transcendental idealism explains the apriority of mathematics (geometry), but also detaches space from things-in-themselves, making it a subjective constitution. This understanding exerted a profound influence on later philosophy, from phenomenology to structuralism, inheriting the subjective-constitutive dimension of space.

Modern physics completely transformed the concept of space. The discovery of non-Euclidean geometries showed that space is not necessarily Euclidean; it can have curvature and different topological structures. Einstein’s general relativity geometrizes gravity: matter-energy curves spacetime, and objects move along geodesics. Space is no longer a passive container, but a dynamic entity interacting with matter. This view of space is both relational (space defined by material relations) and absolute (spacetime is fundamental physical reality).

Quantum gravity theories (such as string theory, loop quantum gravity) further challenge the classical concept of space: at the Planck scale, space may be discrete, non-continuous; spacetime may not be fundamental, but emergent from more basic structures (such as loops, strings, information). These theories are not yet mature, but foreshadow a possible revolution in the concept of space.

Phenomenology reveals the experiential dimension of space. Heidegger distinguished “spatiality” (Räumlichkeit) from “space” (Raum): the former is the basic structure of Dasein’s being-in-the-world, the latter a derived geometric concept. Dasein is primarily “de-distancing” (Ent-fernung) and “directionality” (Ausrichtung): approaching things in concern, orienting in situations. This existential spatiality is prior to objective, geometric space.

Merleau-Ponty further developed the concept of bodily space: space is not an objective coordinate system, but the primordial connection between the body and the world. The body is our “anchoring point,” the origin of spatiality. Left and right, up and down, near and far — first bodily directions, then objectified as geometric relations. This bodily space is pre-reflective, prior to the subject-object split, the foundation of objective space.

Social theory reveals the social constructedness of space. Henri Lefebvre proposed the theory of the “production of space”: space is not a natural given, but a product of social relations; space is not merely the background of social action, but also its result; space embodies power relations, class structures, ideology. From urban layout to architectural form, from territorial division to landscape design — space is political and cultural.

Foucault analyzed the power dimension of space: prisons, hospitals, schools, barracks are all “disciplinary spaces,” disciplining bodies and controlling behavior through spatial organization. Panopticism is a model of this spatial-power technology. This analysis reveals the micro-politics of space, exerting a profound influence on later spatial studies.

The view of space in Natural Rationalism is synthetic and multi-leveled. We hold that space is both physical reality, experiential structure, and social construction. At the physical level, space is the distributional structure of matter-energy, following geo-physical laws; at the experiential level, space is bodily orientation, perceptual field, horizon of action; at the social level, space is a network of relations, a vehicle of power, a medium of meaning.

The unity and diversity of space require balance. On the one hand, different levels of space are interrelated: physical space constrains bodily space, bodily space is the foundation of perceptual space, perceptual space participates in the construction of social space. On the other hand, different levels of space have relative autonomy: social space cannot be reduced to physical space, bodily space cannot be fully explained by physical laws. This understanding of unity-in-difference avoids both reductionism and dualism.

The relation between space and time is intrinsic in this understanding. Relativity has shown that spacetime is an indivisible whole. At the phenomenological level, spatiality and temporality are basic structures of Dasein, interwoven. At the social theoretical level, spatial organization is always historical, temporal experience always spatial (such as the “spatialization of time”). Natural Rationalism upholds the unity of spacetime, but acknowledges different manifestations at different levels.

The relation between space and being is a core ontological question. Is space an attribute of being, or a precondition of being? Do beings occupy space, or does space make beings possible? Natural Rationalism holds that space and being belong together (Zusammengehörigkeit, Heidegger): being always unfolds in

space, space is always the space of beings. This belonging-together is not logical priority, but the co-constitution of being.

In summary, the philosophy of space reveals the extensionality and situatedness of being. The view of space in Natural Rationalism is multi-leveled, dynamic, socially constructed, and unified with time. This understanding provides a spatial foundation for understanding the objectivity of science and the spatiality of society.

Chapter 7: Causality and Law: Necessity and Contingency in Nature

Causality is a core category for human understanding of nature, and the foundation of science. From Aristotle’s four causes to Hume’s skepticism about causality, from Kant’s transcendental category of causality to contemporary causal theories, the philosophical problem of causality has constantly troubled thinkers. Natural Rationalism attempts to find a dialectical understanding between necessity and contingency, determinism and randomness, law and chaos.

Aristotle’s doctrine of four causes provides a comprehensive framework for understanding change: material cause (what a thing is made of), formal cause (what a thing is), efficient cause (where change comes from), final cause (what change is for). These four causes explain the existence and change of things. This causal view is comprehensive, but has been criticized for confusing different types of explanation — especially the introduction of final cause is seen as anthropomorphic.

Modern mechanistic causality (Galileo, Descartes, Hobbes) reduces causality to efficient cause: causality is the collision and push between objects, mathematically describable. This view supports classical physics, but also faces Hume’s devastating criticism: all we observe is constant conjunction of events, not necessary causal connection; causal necessity is not discovered in experience, but a projection of mental habit.

Hume’s skepticism triggered a profound philosophical crisis: if causality is merely habit, what is the foundation of science? Kant’s response was: the category of causality is a pure form of the understanding, not abstracted from experience, but a condition that makes experience possible. This transcendental argument saves the necessity of causality, but also makes it a subjective constitution, not a property of things-in-themselves.

Modern physics poses new challenges to causality. The indeterminacy of quantum mechanics shows that at the micro level, events occur probabilistically, not deterministically. This sparked intense debate: is quantum uncertainty epistemological (due to our ignorance) or ontological (a real feature of nature)? Einstein insisted that “God does not play dice,” holding quantum mechanics incomplete; Bohr accepted this uncertainty as a fundamental feature of nature.

Chaos theory shows that even deterministic equations can produce unpredictable behavior (the butterfly effect). This separation of determinism and predictability blurs the boundary between determinism and indeterminism: ontologically, the system is determined; epistemologically, its behavior is random. This “effective indeterminacy” raises new questions for the concept of causality.

Developments in contemporary causal theory provide new tools. David Lewis’ counterfactual theory: causality is counterfactual dependence — if A had not happened, B would not have happened. This theory handles problems of overdetermination and preemption, but faces semantic difficulties with counterfactual conditionals.

Interventionist theories of causality (Woodward, Pearl): causality is a relation changeable by intervention. This theory is closely related to experimental method, emphasizing the operational character of causality. Yet it seems to presuppose the possibility of free intervention, facing difficulties within a deterministic framework.

Process theories (Salmon, Dowe): causality is the transfer of physical processes, such as energy-momentum. This theory emphasizes the physical basis of causality, but may rely too heavily on specific physical theories and lack universality.

The causal view of Natural Rationalism is pluralistic and multi-leveled. We hold that causality is not a single, universal concept, but a pattern manifesting differently at different levels:

At the physical level, causality appears as the necessity of laws (classical mechanics) or probabilistic distribution (quantum mechanics). This causality is objective, mathematical, independent of consciousness.

At the biological level, causality appears as functional dependence: the existence of a structure serves a function, and the realization of a function depends on structure. This causality is teleological, yet naturalizable by evolutionary theory.

At the psychological level, causality appears as the rationality of reasons: actions are caused by reasons, which make actions intelligible. This causality is normative, involving beliefs, desires, intentions.

At the social level, causality appears as structural constraint: social structures have causal effects on individual action, but such effects are mediated by individuals’ meaningful understanding.

The dialectic of necessity and contingency is key to understanding causality. Traditional metaphysics pursues absolute necessity, regarding contingency as a

defect of cognition or a superficial phenomenon. Natural Rationalism holds that contingency is real and fundamental, not merely apparent. Quantum uncertainty, chaotic sensitivity, evolutionary randomness — all show that contingency is a constitutive feature of nature. Yet contingency is not chaotic disorder, but structured, probabilistic, statistically tractable. Necessity is not imposed on nature, but emergent from the law-like structure of nature.

The concept of natural law requires re-examination. The traditional Humean view regards laws as constant conjunctions of events; necessitarian views (such as Armstrong) regard laws as necessary relations between universals; systemic views regard laws as stable behavioral patterns of systems. Natural Rationalism leans toward the systemic understanding: laws are emergent properties of complex systems, organized stable patterns — neither purely contingent nor absolutely necessary.

The relation between causality and freedom is a core question of practical philosophy. If everything is causally determined, how is freedom possible? If genuine contingency exists, is freedom guaranteed? Natural Rationalism holds that freedom is not the opposite of causality, but a special form of causality: self-determined causality. Free actions are caused by the agent's reasons, values, and character — these reasons constitute "causal autonomy." This understanding both preserves causality and leaves room for freedom, avoiding the mystery of libertarianism and the fatalism of determinism.

In summary, the philosophy of causality reveals the orderliness and openness of nature. The causal view of Natural Rationalism is multi-leveled, pluralistic, and dialectically unified in necessity and contingency. This understanding provides a causal foundation for understanding the nature of scientific explanation and the logic of social action.

Chapter 8: The Unity and Diversity of Nature: The Dialectic of the One and the Many

The unity and diversity of nature is an eternal theme of philosophy. Is the world one or many? Identical or different? These questions have run through the entire history of philosophy since the debates of Parmenides and Heraclitus. Natural Rationalism attempts to transcend this dualism and propose a dialectical unity: unity exists in diversity, and diversity is understood through unity.

Parmenides' ontology established the priority of unity. "Being is one, unmoved, whole, and complete." Diversity, change, motion are illusions; only unified being is real. This extreme rationalism influenced later Platonism, Neoplatonism, and even Christian theology. Unity became the source of value, diversity a sign of decline.

Heraclitus' dialectic emphasizes diversity and change. "All things flow, nothing abides"; "unity in opposites." Fire, as the fundamental symbol, is both one and

changing, unified and diverse. This thought influenced the dialectical tradition from Hegel to Marx, all emphasizing contradiction, change, development.

Plato’s synthesis attempted to reconcile the One and the Many. The world of

□□□□□□□□□□□□□□□□·□□□□·□□□□——□□□□□□□□□□□□□□□□

□□□ □□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□

□□□

□□□□□□□□□□□□□"□□□□"□□□□□□□□□□□□□

□□□

□□□

□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□ □□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□

□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□Robert Merton□□□□□□□□□□□□□□□□□□□

□□□

□□□

□□□□□□ □□□□□□□

□□□

□□□

□□□□□□□□□□ □□□□□□□□□□□

□□□□□□□□□ □□□□□□□□□□

□□□□□□□□□□ □□□□□□□□□□□

□□□□□□□ □□□□□□□□

□□□□□good□□ □□□□□□

□□□□□□□□ □□□□□□□□□

□□□□□□□□ □□□□□□□□□

□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□deliberation□□□□□□□□□ reasoning□□□□□□□□□□□□□□□□□□□

□□□□ □□□□□□□□□□

□□□□ □□□□□□□□□□□□□□□

□□□□ □□□□□□□□□

□□□□ □□□□□□□□□□□

□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□ □□□□□IMF□WTO□UN□□□□□□□□□□

□□□□□□□□□ □□□□□□□□□□

□□□

□□□□

□□□□□□□□·□□□□·□□□□—□□□□□□□

□□□□□□□□